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Claims

- 1 1. A method of calibrating a plurality of seismic sensors, each sensor having
2 an axis of sensitivity, comprising:
3 coupling the sensors with each sensor positioned with its axis of
4 sensitivity in a different spatial direction;
5 rotating the sensors;
6 measuring one or more output signals from the sensors;
7 processing the output signals from the sensors; and
8 storing one or more calibration coefficients.
- 1 2. The method of claim 1, wherein the sensors comprise micro-machined
2 accelerometers.
- 1 3. The method of claim 1, wherein coupling the sensors with each sensor
2 positioned with its axis of sensitivity in a different spatial direction
3 comprises, coupling the sensors with the axes of sensitivity in:
4 a first direction;
5 a second direction; and
6 a third direction.
- 1 4. The method of claim 1, wherein rotating the sensors comprises, rotating
2 the sensors about the x-axis, the y-axis and the z-axis.
- 1 5. The method of claim 1, wherein measuring one or more output signals
2 from the sensors comprises, measuring the output signals from the
3 sensors at one or more angles of rotation.
- 1 6. The method of claim 1, wherein processing the output signals from the
2 sensors comprises, calculating one or more calibration coefficients from
3 the measured output signals of the sensors.

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- 1 7. The method of claim 1, wherein each sensor further includes a corresponding
2 ASIC having a local non-volatile memory; and wherein storing one or more
3 calibration coefficients includes storing the corresponding calibration
4 coefficients to the corresponding local non-volatile memories.
- 1 8. The method of claim 1, wherein storing one or more calibration coefficients
2 includes storing the corresponding calibration coefficients to an external
3 database.
- 1 9. The method of claim 1, wherein coupling, rotating, measuring, and processing
2 are provided in accordance with the Institute of Electrical and Electronic
3 Engineers Specification IEEE 337-1972 for the IEEE Standard Specification
4 Format Guide and Test Procedure for Linear, Single-Axis, Pendulous, Analog
5 Torque Balance Accelerometer.
- 1 10. The method of claim 1, wherein the seismic sensor further comprises a proof
2 mass, the method further comprising controlling the position of the proof mass
3 at two or more locations using an electronic signal.
- 1 11. The method of claim 10 further comprising correcting seismic sensor non-
2 linear characteristics using the positioning of the proof mass.
- 1 12. The method of claim 11 further comprising determining a proof mass control
2 setting indicative of the mass position for correcting the non-linear
3 characteristics and storing the control setting.
- 1 13. The method of claim 5, wherein the seismic sensor further comprises a proof
2 mass, the method further comprising controlling the position of the proof mass
3 at two or more locations using an electronic signal and measuring the position
4 of the proof mass at two or more positions.

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- 1 14. The method of claim 7, wherein the seismic sensor further comprises a proof
2 mass, the method further comprising controlling the position of the proof mass
3 at two or more locations using an electronic signal, determining a proof mass
4 control setting indicative of a mass position for correcting seismic sensor non-
5 linear characteristics, and storing the control setting.

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